Final Report

Type of project: Demonstration

Title: 2000 Westchester County Golf Course IPM Demonstration Project

Location: Dunwoodie Golf Course in Yonkers, NY and Maple Moore Golf Course in White Plains, NY

Project Leaders: Todd Schongalla, James Lee and Joe Heller, CCE of Westchester County; Gary Couch, NY State IPM Program; Dr. Patricia Vittum, Professor of Entomology, University of Massachusetts.

Collaborators: Gary Metz, Doug Hall, John Sackel, Kevin Duffy, Joe Stout and Ronald Demkovich, Westchester County Department of Parks, Recreation and Conservation (PRC). Rod Ferrentino, Community IPM Coordinator. Dr. Tamsen Yeh, CCE of Nassau. Westchester County Pest Management Committee.

Summary: Our research to date has not demonstrated the efficacy of *Steinernema carpocapsae* (Sc) nematodes in controlling the annual bluegrass weevil. In comparison to the 45 private courses in Westchester, county courses operate with three times the traffic, half the staff and a third of the materials and equipment. For three years this project has taught Westchester County's golf course managers to reduce their reliance on pesticides through cutting-edge research and practical hands-on training.

Objectives of this project were:

1. Insecticide Reduction and Research: Test the effectiveness of four less toxic alternatives for Hyperodes control. Provide an opportunity for Extension specialists to train participants and gather research data by demonstrating and implementing effective alternative control methods.

2. IPM Scouting: Continue to train existing personnel in effective scouting and documentation procedures to provide accurate data so managers and greenskeepers can make informed IPM choices.

3. Training and Dissemination: Provide opportunities for the exchange of ideas and strategies between and among Westchester golf course professionals and the academic/research community.

Methods:

1. Insecticide Reduction and Research: We collaborated with Dr. Vittum's research on two alternatives for Hyperodes control at Dunwoodie Golf course: *Steinernema carpocapsae* (SC's) (available commercially as Millenium), *Spinosad* (a product of a soil actinomycete, available as Conserve). We also tested the use of *Heterorhabditis bacteriophora* (Hb) nematodes in controlling grubs at Maple Moor Golf Course.

2. IPM Scouting: We continued training of PRC staff in IPM practices which included monitoring for weeds, insects, and diseases according to NYS IPM scouting procedures.

3. Training and Dissemination: Participants received hands-on training in turfgrass research procedures and sampling methods. We also held two workshops that golf course staff attended on IPM practices and strategies. As in 1999, we pursued publicity opportunities to advertise this project.

Results and Discussion:

1. Insecticide Reduction and Research: The University of Massachusetts turf entomology team conducted one field trial at Dunwoodie Golf Course in Yonkers, testing the efficacy of *Steinernema carpocapsae* (Millenium) nematodes or spinosad (Conserve) against the annual bluegrass weevil. Plots were five feet by seven feet, placed along the collar of one of the most heavily infested greens, and were replicated three times. We collected 18 cores, each 1.9 inch in diameter, from the plots in early June and hand-inspected each core in the laboratory in Amherst, Mass. For statistical purposes, we pooled the counts from three cores at a time (six "observations" per plot), and ran a Fisher's protected LSD on the data.

Populations in the untreated plots were very high - 270 larvae per square foot. Both applications of nematodes (applied at 1.5 or 3 billion nematodes per acre in May) reduced larval populations significantly (P=0.05) but those populations remained above 145 larvae per square foot, well above the generally accepted "threshold" of 30 to 80 larvae per square foot. The Conserve application reduced populations significantly (P=0.01), dropping levels to around 12 larvae per square foot.

We had hoped to include additional biological control options in 2000 but encountered logistical problems. It continues to be our hope to test another species of Steinernema nematode, as well as a strain of *Bacillus thuringiensis*, in 2001.

The demonstration of using Hb nematodes for grub control at Maplemoor Golf Course was planned for late-August. However, with the untimely departure of the project leader, arrangements for delivery were not made until September. In late September, a workshop was held with course personnel on grub sampling and nematode application technique. An area of rough on the 9th fairway was chosen as sampling indicated high grub numbers (20/sq ft) and damage from foraging skunks was apparent. Species composition was predominantly European Chafer, almost all in the third instar. Though successful control of these large grubs was not expected, application to an area of approximately 400 sq ft was made to demonstrate the process to the staff. Follow-up sampling, conducted by course personnel, indeed indicated that no control was achieved.

2. IPM Scouting: We continued to work with PRC staff on monitoring for pests. If needed, golf course personnel consulted with CCE, NY State IPM, and staff from the University of Massachusetts when making pest management decisions.

3. Training and Dissemination: Golf course personnel received hands-on training in IPM procedures and sampling practices on the days that samples were taken and the product applications of Steinernema nematodes and Spinosad were made at Dunwoodie. A late summer workshop was held at Maple Moor to demonstrate the use of nematodes to control grubs. At this workshop, participants learned how to scout for grubs and apply nematodes for their control. Our IPM educator, Joe Heller, discussed our IPM golf course demonstration project in an interview on a local cable TV station.

Budget:
Wages and salaries: 106 hours @ $33 per hour = $3498
Supplies (include type of supplies, per unit price, and quantity): $200
Equipment (include description, estimated costs of each item): $200
Travel: $750
Telephone: $102
Courier service (to send samples to
Dr. Pat Vittum's lab in Massachusetts): $250
Total: $5000
Expected contributions from stakeholders: 100 hours @ $30 per hour = 3000
Grand Total = $8000